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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,490	03/31/2004	Toshihisa Takeyama	KOT-0094	8491

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT PAPER NUMBER

1756

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

<b>Office Action Summary</b>	<b>Application No.</b> 10/815,490	<b>Applicant(s)</b> TAKEYAMA, TOSHIHISA	
	<b>Examiner</b> Martin J. Angebrannt	<b>Art Unit</b> 1756	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 3/31/04.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,4,5,7-9,14,17 and 20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Kawabata et al. '340.

Kawabata et al. '340 in examples 16-18, a mixture of cationically curable materials, free radical curable materials (bis(4-acryloxydiethoxyphenyl)methane), a radically polymerization initiator, a sensitizing dye (dye 1) and a triphenylsulfonium hexafluorophosphate as the cationic polymerization initiators (table 4, col 11) which was applied to a glass plate and overcoated with a polyethylene film, exposed to the interference light and then postcured with a flood exposure from a mercury lamp (7/55-8/40). The use of various onium salts is disclosed. (6/8-18).

The triphenylsulfonium compounds are held to inherently be thermal cationic polymerization initiators as well as cationic photoinitiators.

4. Claims 1,4,5,7-9,14,17 and 20 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Ohkuma et al. '634.

Ohkuma et al. '634 in examples 6-8, a mixture of cationically curable materials, free radical curable materials, a radically polymerization initiator, a sensitizing dye (dye 1) and a

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triphenylsulfonium trifluoroacetic acid as the cationic polymerization initiators (col 15) which was applied to a glass plate and overcoated with a polyethylene film to a thickness of 7 to 23 microns, exposed to the interference light and then postcured with a flood exposure from a mercury lamp (11/4-65). The use of various onium salts is disclosed. (9/35-10/30).

5. Claims 1,2,4,5,7-9,14,16,17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata et al. '340, in view of Crivello '654.

Crivello '654 teaches cationic photoinitiators including those shown in column 3.

It would have been obvious to one skilled in the art to modify to cited example of Kawabata et al. '340 by using the dialkylaryl or cyclic sulfonium compounds in place of the triarylsulphonium compound used as the photoinitiator with a reasonable expectation of forming a useful photosensitive composition.

The shape of the resultant medium is considered and obvious design choice.

6. Claims 1-5,7-9,14,16,17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkuma et al. '634, in view of Crivello '654.

It would have been obvious to one skilled in the art to modify to cited example of Ohkuma et al. '634 by using the dialkylaryl or cyclic sulfonium compounds in place of the triarylsulphonium compound used as the photoinitiator with a reasonable expectation of forming a useful photosensitive composition. The trifluoroacetic acid is present as the counterion.

7. Claims 1-9,14,16,17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkuma et al. '634, in view of Crivello '654, further in view of Otaki et al. '744

Otaki et al. '744 teaches cationically curable materials including epoxies, cyclic ethers and oxetane rings (5/25-42).

In addition to the basis above, it would have been obvious to use other cationically curable moieties, such as oxetane, in place of epoxide rings used in the media resulting from the combination of Ohkuma et al. '634 and Crivello '654 with a reasonable expectation of forming a useful holographic recording medium based upon the disclosure of equivalence by Otaki et al. '744

8. Claims 1-5, 7-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dhar et al. '551, in view of Ohkuma et al. '634, Crivello '654, Roth et al. '814 and Hegel et al. '008.

Dhar et al. '551 teach in example 1, an acrylate monomer and CGI-784 as the photoinitiator mixed with matrix precursors dibutyltin dilaurate, diisocyanate terminated polypropylene glycol and dihydroxypolypropylene glycol, which are heated (13/65-15). Examples 3 and 4 are similar, place the composition between two glass slides with a spacer and after curing of the matrix are used to record holograms. The ability to form thick recording layers of more than 200 microns is disclosed. (3/13-19, 4/3-12). Useful photoactive monomers including acrylates are disclosed as useful in this system. (6/51-67). A reduction in shrinkages of the hologram is also realized (7/1-48). The use of various reactions including cationic epoxy or vinyl ether polymerization to form the matrix is disclosed. (6/26-50)

Roth et al. '814 establishes that sulfonium salts are able to thermally initiate cationic polymerization (1/9+).

Hegel et al. '008 teach in example 1, an acrylate monomer and IRG-784 as the photoinitiator mixed with matrix precursors dibutyltin diacetate, diisocyanate terminated polypropylene glycol and dihydroxypolypropylene glycol, which are placed between 1.2 mm

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substrates with a 500 micron spacer and after curing of the matrix [0031-0040]. The formation of holograms using these is disclosed. [0052-0056]. Useful photoactive monomers including acrylates are disclosed as useful in this system. [0029]. A reduction in shrinkages of the hologram is also realized. The provision of antireflection coatings on one or both of the substrates is disclosed. [0016,0018]. The substrates may be 0.5-1.3 mm thick [0019].

It would have been obvious to modify the teachings of Dhar et al. '551 by using an epoxy precursor such as those resulting from the combination of Ohkuma et al. '634 and Crivello '654 as discussed above for the matrix based upon the disclosure and the evidence of compatibility in holographic systems including free radically curable compositions from Ohkuma et al. '634 and the evidence from Roth et al. '814 that sulfonium salts are known to act as thermal cationic curing agents and to use the glass substrates, spacers and AR coatings taught by Hegel et al. '008 based upon the similarity with Dhar et al. '551.

9. Claims 1-5 and 7-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dhar et al. '551, in view of Ohkuma et al. '634, Crivello '654, Roth et al. '814 and Hegel et al. '008, further in view of Horimai et al., WO 02/15176

Horimai et al., WO 02/15176 (Hormai et al. '891 is US equivalent) teaches with respect to figure 1, a holographic recording medium which comprises a substrate (2), a holographic recording layer (photopolymers) (3), a second substrate (4) and a reflective layer (5). The reflective layer and the recording layer can be next to each other (12/5-23; 11/40-64). The interference fringes results from the interferences from the light passing through the layer toward the reflective layer and that reflected back into the laser from the reflective layer. (col 5. ?; 4/53-5/7).

In addition to the basis provided above, it would have been obvious to one skilled in the art to modify the embodiments rendered obvious by the combination of Dhar et al. '551 with Ohkuma et al. '634, Crivello '654, Roth et al. '814 and Hegel et al. '008 as set forth above by adding a reflective layer on the further substrate as taught Horimai et al., WO 02/15176 to allow holographic recording without a second beam.

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1 and 4-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/802143 (US 2004/0197670).

It would have been obvious to one skilled in the art use the binders having the oxetane or epoxide moieties.

This is a provisional obviousness-type double patenting rejection.

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12. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/802143 (US 2004/0197670), in view of Crivello '654.

It would have been obvious to one skilled in the art modify the claims of copending Application No. 11/201,815 (US 2006/0040185), by using the sulfonium photoinitiator such as those disclosed by Crivello '654 with a reasonable expectation of forming a useful holographic recording medium.

This is a provisional obviousness-type double patenting rejection.

13. Claims 1 and 4-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/937188 (US 2005/0058911).

It would have been obvious to one skilled in the art use the binders having the oxetane or epoxide moieties.

This is a provisional obviousness-type double patenting rejection.

14. Claims 1-20 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 10/802143 (US 2004/0197670), in view of Crivello '654.

It would have been obvious to one skilled in the art modify the claims of copending Application No. 11/201,815 (US 2006/0040185), by using the sulfonium photoinitiator such as those disclosed by Crivello '654 with a reasonable expectation of forming a useful holographic recording medium.

This is a provisional obviousness-type double patenting rejection.



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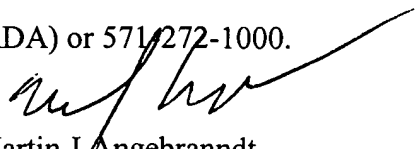
15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takeyama et al. '185, Hirao et al. '037 and Takeyama et al. '010 are copending applications.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Martin J. Angebrannndt  
Primary Examiner  
Art Unit 1756

12/11/06